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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/593,973	09/22/2006	Satoshi Asari	33082M355	5621
441 7590 05/12/2009 SMITH, GAMBRELL & RUSSELL 1130 CONNECTICUT AVENUE, N.W., SUITE 1130 WASHINGTON, DC 20036			EXAMINER RUDAWITZ, JOSHUA I	
			ART UNIT 3652	PAPER NUMBER
			MAIL DATE 05/12/2009	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/593,973

Applicant(s)

ASARI ET AL.

Examiner

JOSHUA I. RUDAWITZ

Art Unit

3652

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 February 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 and 6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/CIS)
- Paper No(s)/Mail Date 09/09/2008

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tometsuka (US 2001/0052325) in view of Iwai Seiji (JP 2003-338531) in view of Kesil et al. (US 7,140,655).

Tometsuka discloses a vertical heat treatment system, and associated method including a heat treatment furnace, 1, having a furnace throat 7 in a lower part thereof; a lid 11 that hermetically closes the furnace throat; a holder 21, disposed on the lid, that holds a plurality of process objects at vertical intervals via ring-shaped support plates 24; an elevating mechanism 12 that moves the lid vertically to load and unload the holder into and from the heat treatment furnace; and a transfer mechanism 50 that transfers process objects between the holder and a container holding therein a plurality of process objects at intervals, the transfer mechanism including: a plurality of substrate support devices 55 spaced at intervals; each of the ring-shaped support plates has cutouts for preventing the ring-shaped support plate from colliding with the fixed engagement member and the movable engagement member

Tometsuka fails to disclose the transfer mechanism further includes each substrate support device having front and rear seats fixedly provided on a lower surface of the substrate support device for respectively receiving front and rear edge portions of an upper surface of a process object, the front seat having an inclined surface directed obliquely downward and the rear seat having an inclined surface directed obliquely downward; and gripping mechanisms, each gripping mechanism being configured to grip a process object on an under side of an associated one of the substrate support devices, each of the gripping mechanisms has having a fixed engagement member fixedly provided on a distal end of its associated substrate support device to engage with a front edge portion of a process object and a movable engagement member movably attached to a proximal end of its associated substrate support device to be disengageably engaged with a rear edge portion of the process object, the fixed engagement member having an inclined surface directed obliquely upward to support a front edge portion of a lower surface of the process object, and the movable engagement member having an inclined surface directed obliquely upward to support a rear edge portion of the lower surface of the process object, whereby, when the movable engagement member moves forward relative to its associated substrate support device to approach the fixed engagement member and grip the process object, the front edge portion of the process object is held by the inclined surface of the front seat and the inclined surface of the fixed engagement member, while the rear edge portion of the process object is held by

the inclined surface of the rear seat and the inclined surface of the movable engagement member, so that a gap is formed between a lower surface of the associated substrate support device and an upper surface of the process object; the substrate support device is provided with a mapping sensor, which is configured to detect a position of a detection object by moving the at least one substrate support device such that a light beam traveling between two distal ends of the at least one substrate support device is interrupted by the detection object.

Iwai Seiji [Seiji] discloses a transfer mechanism 21, that includes each substrate support device having front 38a/39a and rear seats 36/37 fixedly provided on a lower surface of the substrate support device for respectively receiving front and rear edge portions of an upper surface of a process object; and gripping mechanisms, each gripping mechanism being configured to grip a process object on an under side of an associated one of the substrate support devices, see figure 7, each of the gripping mechanisms has having a fixed engagement member 38b/39b fixedly provided on a distal end of its associated substrate support device to engage with a front edge portion of a process object and a movable engagement member 36b/37b movably attached to a proximal end of its associated substrate support device to be disengageably engaged with a rear edge portion of the process object, when the movable engagement member moves forward relative to its associated substrate support device to approach the fixed engagement member and grip the process object, the front edge portion of the process object is held by the inclined surface of the front seat

and the inclined surface of the fixed engagement member, while the rear edge portion of the process object is held by the inclined surface of the rear seat and the inclined surface of the movable engagement member, so that a gap is formed between a lower surface of the associated substrate support device and an upper surface of the process object. Simple substitution of one gripper orientation for another would yield the predictable result of the wafer being gripped for transport; therefore it would have been obvious to use the gripping means of Seiji in place of the gripper in Tometsuka as the predictable result of the wafer being gripped would be achieved by the simple substitution of known elements.

The Tometsuka in view of Seiji combination fail to disclose the front seat having an inclined surface directed obliquely downward and the rear seat having an inclined surface directed obliquely downward, the fixed engagement member having an inclined surface directed obliquely upward to support a front edge portion of a lower surface of the process object, and the movable engagement member having an inclined surface directed obliquely upward to support a rear edge portion of the lower surface of the process object and the substrate support device is provided with a mapping sensor, which is configured to detect a position of a detection object by moving the at least one substrate support device such that a light beam traveling between two distal ends of the at least one substrate support device is interrupted by the detection object.

Kesil et al. (Kesil) discloses a front seat having an inclined surface directed obliquely downward and the rear seat having an inclined surface

directed obliquely downward, the fixed engagement member having an inclined surface directed obliquely upward to support a front edge portion of a lower surface of the process object, and the movable engagement member having an inclined surface directed obliquely upward to support a rear edge portion of the lower surface of the process object, see generally figures 6 and 7, in order to avoid misalignment; and the substrate support device is provided with a mapping sensor, which is configured to detect a position of a detection object by moving the at least one substrate support device such that a light beam traveling between two distal ends of the at least one substrate support device is interrupted by the detection object, in order to detect the orientation of the wafer (cl 6: ln.48-50). Therefore it would have been obvious to a person having ordinary skill in the art, at the time of invention, to include the prescribed shapes of the engagement members in the Kesil reference to avoid misalignment; and the mapping sensor in order to detect the orientation of the wafer in the Tometsuka in view of Seiji combination.

3. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tometsuka (US 2001/0052325) in view of Iwai Seiji (JP 2003-338531) in view of Kesil et al. (US 7,140,655) in view of Suzuki et al. (US 6,758,876).

The Tometsuka in view of Seiji in view of Kesil combination fail to disclose the engagement members are made of heat-resistant resin. It would have been obvious to one having ordinary skill in the art, at the time of invention, to use as heat resistant resin, such as PEEK, as disclosed by Suzuki et al. [cl 13; ln. 16];

since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice.

Response to Arguments

4. Applicant's arguments filed 02/04/2009 have been fully considered but they are not persuasive.

5. With regards to the applicant's arguments concerning the limitation of claim 3, requiring a cut out, the examiner respectfully disagrees. The examiner notes that while the cut outs may not be equivalents in view of the total disclosure of the applicant's invention, there are no structural differences claimed. As such, the Tometsuka reference reads on the claims as they are currently written.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOSHUA I. RUDAWITZ whose telephone number is (571)272-7856. The examiner can normally be reached on Monday - Friday, 7:30 A.M. - 5:00 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Saul Rodriguez can be reached on 571-272-7097. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. I. R./
Examiner, Art Unit 3652

/Saúl J. Rodríguez/
Supervisory Patent Examiner, Art
Unit 3652